IPRF Progress Report

Concrete Pavement Technology Program

June 2001

Status Summary

- 15 Tasks approved
- 11 Under agreement
- 4 Being developed
- 3 Requested for 2001

Task 1

Traffic Management for Urban Freeway Reconstruction

- Objective: Demonstrate construction and traffic strategies to minimize disruption
- Contractors: UC Berkeley; Texas Transportation Institute
- Status: CA I-10 study complete; summary report and narrated slides

  TTI-Seeking sites for other case studies

Task 2

Impact of Texturing/Surface Treatment on Wet-Weather Accidents

- Objective: Determine relationships among surface type, noise, surface texture and wet-weather accidents
- Contractors: To be determined

Task 3

Whitetopping Overlays for Heavily-loaded Pavements

- Objective: Mechanistic design procedure for ultra-thin, thin, and conventional overlays.
  Construction and QC guidelines
  Rehabilitation alternatives
- Contractor: Transtec
- Status: Completed information search
  Developed refined work plan

Task 3

Initial Findings:

-Whitetopping performance closely correlated with characteristics of HMA layer

-ALF UTW Tests- Direct correlation between slab cracking and HMA rutting

-Staged design planned-Allow user to design with info available. More info--More precision

Task 4

Tests/Standards to Identify Compatible Combinations of Individually Acceptable Concrete Materials

- Objective: Tests/Criteria to avoid:
  - Early stiffening/excessive retardation
  - Early-age cracking
  - Air void problems
- Contractor: CTL
- Status: Work underway, progress review in May

Task 5

Accelerated Load Tests of UTW

- Objective: Verify/calibrate UTW design procedures
- Contractor: Transtec (Task 3)
- Status: Load tests completed, data analyzed under Task 3, repair/rehab performed under Task 7

Task 6

Incremental Costs and Performance Benefits of Various Features of Concrete Pavements

- Objective: Determine most cost-efficient combination of design features for concrete pavements
- Contractor: Applied Pavement Technology
- Status: Survey of State DOTs and contractors underway

Task 7

Field Trials of Concrete Pavement Product and Process Technology

- Objective: Field evaluation in actual construction projects
- Contractors: CTL-UTW Repair Techniques; University of Washington-Weekend Int. Reconstruction; Peak Management Assoc.- Project Management
- Status: UTW repair video completed, 3 new projects approved

Task 7

- Field test thin Whitetop pavements in CO.

  -CTL, CO DOT
- Precast Conc. Panel System for Rapid Repairs

  -Mich. State Univ., Mich DOT
- Performance-Related Specifications

  -ERES Consultants

Task 8

Performance and Design of Unbonded Concrete Overlays

- Objective: Design procedure calibrated to field performance
- Principle Issues:

-Does interaction between overlay and old concrete add to pavement system structure?

-Effects of short joint spacing and bonding interaction-similar to UTW?

Task 8

- Status:
  - Panel meeting May 10
  - Technical questions to selected proposer

Task 9

Influence of Sealing Transverse Contraction Joints on Overall Concrete Pavement Performance

- Objective: Use existing sections to determine effect of joint sealing on long-term performance
- Status: Panel met to develop RFP on May 25. June release expected.

Task 10

Revision of I-Slab 2000 for Subbase/Pavement Interaction

- Objective: Revise analysis program for interaction between concrete slab and underlying layer
- Contractor: ERES Consultants
- Status: Underway. Completion June 2001

Task 11

Workshops on Concrete Pavement Technology

- Objective: Two-day workshops on current technology for state DOT engineers
- Contractor: ACPA
- Status:
  - 2000 Workshop-Breckenridge
  - 2001 Workshops

    San Francisco- State DOTs

    Skokie- Univ. Professors

Task 12

Impacts of Pavement Cracking on Long-Term Performance

- Objective: Literature search, summary report on long-term impacts of pavement cracking. Develop feasibility assessment
- Contractor: CTL, Dr. Tayabji,
  ERES Consultants, Dr. Darter
- Status: Feasibility assessments completed. Will result in new task to focus on repair needs and methods

Task 13

Determine Actual Life-Cycle Costs for Pavements

- Objective: Establish actual life-cycle costs for three highway sections, each approximately 100 miles long, with both concrete and HMA pavements
- Contractor: ERES Consultants
- Status: Preliminary data analysis underway in Iowa, Kentucky and New York.

Task 14

Aurora 2000 Pavement System Analysis Tools

- Objective: Develop set of system analysis tools for pavements
- Contractor: Transtec, Inc
- Status: A2K software and 3 derivative products under review by Task panel. Hands-on training at S.F. Workshop.

Task 15

Long-Term Plan for Concrete Pavement Research and Technology

- Objective: Develop Long-Term Plan and Action Plan for implementation.

Task 15

- Partnership of contractors selected by panel.
- Cost data under review.
- Awaiting notice to proceed.

Task 16

Smoothness Criteria for Concrete Pavements

- Objective:
  - Determine objectionable profile characteristics.
  - Determine how to improve ride quality specifications for acceptance.
- Status: RFP expected June 2001

Task 17

Effects of Cement Stabilized Sub-base on Early Performance of Concrete

- Objective:
  - Characterize the subgrade restraint values for various types of concrete subbases.
- Contractor: TBD

Task 19

Communication Services for the Concrete Pavement Technology Program

- Objective:
  - Develop Communications Plan
  - Provide professional communications services to IPRF and FHWA.
- Status: Awaiting approval to release RFP.

Financial Summary

- Work under agreement/completed

  Approx. $7.5M
- Funds allocated for technology transfer

  Approx. $1.5M

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